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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Administration  
Bureau of Agricultural and Industrial Chemistry  
Philadelphia 18, Pennsylvania

We are continuing active efforts to discover a method of producing apple essence with an alcohol content safely below the taxable limit.

The results of one set of experiments recently made are of considerable interest. It was found that by reducing the evaporation percentages considerably below those hitherto used satisfactory essences of good strength were obtained, while the alcohol content of the essences was greatly reduced. In respect to the latter point, we found that 150-fold (by volume) essence produced by evaporating only 3% of the juice contained 0.15% of ethyl alcohol. Similarly, 6% evaporation gave an essence of 0.3% alcohol, whereas evaporations of 8% and 10%, which are the customary figures, gave essences in the range of 0.4 to 0.5% alcohol.

It is not claimed that evaporation rates greatly below 8% will necessarily produce essences containing the entire aromatic content of the juice, but in view of the great reduction in alcohol content that results, a slight sacrifice in efficiency of recovery of aroma may be economically justifiable.

The juice used for this set of experiments was of good quality, and the entire processing was conducted with the usual commercially practical precautions to avoid fermentation, such as washing and steaming the press and its cloths and passing the juice through the essence-production equipment with a minimum of delay.

Further experimental work, to determine more closely the numerical limits of these phenomena, is under way and will be reported in these columns.

Sincerely yours,

*P. A. Wells*

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